

Specifications of ASTM A790 Grades UNS S31803 Pipe

Specifications : ASTM A790 / ASME SA790,

Standard : ASTM, ASME

Seamless Pipes & Tubes Sizes : 1 / 2" NB - 16" NB

Welded Pipes & Tubes Sizes : 6" NB - 24" NB

Outer Diameter : 6.0-630mm

Thickness : 0.3mm – 50 mm

Schedule : SCH10, SCH30, SCH40, STD, SCH80, XS, SCH60, SCH80, SCH120, SCH140, SCH160, XXS

Types : Seamless / Welded

Length : Single Random, Double Random & Required Length

Form : Round Pipes/Tubes, "U" Shape,

End : Plain End, Beveled End, Treaded

Grades : Duplex S31803, S32205

ASME SA790 Duplex Steel Pipes & Tubes Equivalent Grades

| STANDARD | WERKSTOFF NR. | UNS |
|-------------|---------------|-----------------|
| Duplex 2205 | 1.4462 | S31803 / S32205 |

Chemical Composition of Duplex Stainless Steel Pipe & Tubing

| Grade | C | Mn | Si | P | S | Cr | Mo | Ni | N | Fe |
|---------------|--------------|-------------|-------------|--------------|--------------|----------------|----------------|----------------|----------------|--------------|
| S32205 | 0.030 max | 2.00 max | 1.00 max | 0.030 max | 0.020 max | 22.0 - 23.0 | 3.0 - 3.5 | 4.50 - 6.50 | 0.14 - 0.20 | 63.72 min |
| S31803 | 0.030 max | 2.00 max | 1.00 max | 0.030 max | 0.020 max | 21.0 - 23.0 | 2.50 - 3.50 | 4.50 - 6.50 | 0.8 - 0.20 | 63.54 min |

Mechanical properties

Tensile and Hardness Requirements

| UNS Designation | Tensile Strength, min, ksi [MPa] | Yield Strength, min, ksi [MPa] | Elongation in 2 in. or 50 mm, min, % | Hardness, max | |
|---------------------|----------------------------------|--------------------------------|--------------------------------------|---------------|-----|
| | | | | Brinell | HRC |
| S31803 | 90 [620] | 65 [450] | 25 | 290 | 30 |
| S32205 ^A | 95 [655] | 65 [450] | 25 | 290 | 30 |

Mechanical Tests

Transverse or Longitudinal Tension Test—One tension test shall be made on a specimen for lots of not more than 100 pipes. Tension tests shall be made on specimens from 2 pipes for lots of more than 100 pipes.

Flattening Test

For pipe heat treated in a batch-type furnace, flattening tests shall be made on 5 % of the pipe from each heat-treated lot. For pipe heat treated by the continuous process, or by direct quenching after hot forming, this test shall be made on a sufficient number of pipes to constitute 5 % of the lot, but in no case less than two lengths of pipe.

Hardness Test

Brinell or Rockwell hardness tests shall be made on specimens from two pipes from each lot

Hydrostatic or Nondestructive Electric Test

Each pipe shall be subjected to the nondestructive electric test or the hydrostatic test. The type of test to be used shall be at the option of the manufacturer, unless otherwise specified in the purchase order.